Observations of Brorsen's Comet, February and March 1879.

By J. Tebbutt, Esq.

Owing to an extraordinary succession of cloudy evenings I have succeeded in obtaining only two determinations of position of Brorsen's comet since the date of my last communication. Each position depends on two ring-comparisons with the $4\frac{1}{2}$-inch Equatoreal. There was no condensation of light in the comet, so that the observation errors will probably prove rather large.

Windsor Mean Time 1879.	App. R.A. of Comet.	Log. for Parallax.	App. N.P.D. of Comet.	Log. for Parallax.	Comp. Star.
d h m s	h m s	+	° ′ ″	+	
Feb. 26 7 49 46	0 49 57·60	8·7454	99 34 50·8	9·7165	B.A.C. 248
Mar. 11 7 18 41	1 30 29·42	8·7299	90 1 17·9	9·7407	Lalande 3045

The adopted mean places of the stars of comparison for 1879·0 and the apparent places for the dates of observation are :—

Comparison Star.	Mean R.A.	App. R.A.	Mean N.P.D.	App. N.P.D.
	h m s	s	° ′ ″	″
B.A.C. 248	0 48 11·45	11·86	99 23 49·5	48·6
Lalande 3045	1 33 12·92	13·37	90 0 7·8	4·7

The comparisons on February 26 are corrected for proper motion and refraction, but the latter correction for the comparisons of March 11 will hardly be appreciable.

Observatory, Windsor, N.S.W.,
   1879, *March* 26.

A New Method of controlling the Driving Clock of an Equatoreal.

By R. C. Johnson, Esq.

This is a description of an automatic brake to be applied to a rapidly moving part of the mechanism of an ordinary equatoreal Driving Clock whenever the normal velocity is exceeded.

As applied to my Driving Clock belonging to a $9\frac{1}{4}$-inch Reflector, it consists of the following parts :—A frame of brass, slotted so as to enclose, without touching, the centrifugal arms of the governor, is fixed to the upright axis to which these arms are attached, but is insulated from it : in the frame are two brass screws,* which can be regulated so as just to be in contact with the arms when the proper speed has been attained. Two metallic wheels are fixed to the lower part of the axis, the upper of which

* Only one of these need be in use.

is insulated from it, but connected by a wire with the frame in the upper part, and the lower one is in metallic contact with the axis.   Two light springs are in contact with these wheels, and an electro-magnetic brake (as shown by the figure) is balanced so as to press lightly on the base of the lower wheel when no current is passing.

Four to eight small-sized Leclanché cells suffice to actuate this brake.
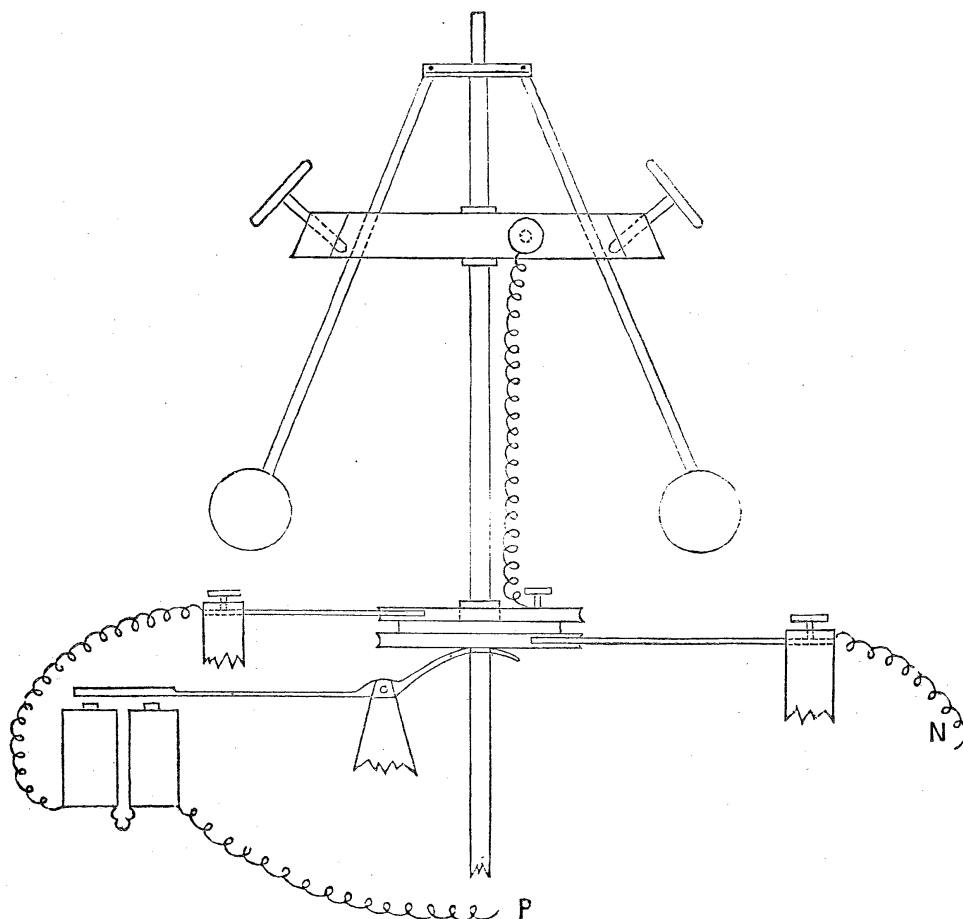
No current can pass until the weighted arms fly out so as to touch one of the screws in the upper frame ; electrical contact is then made, the brake acts instantly, and immediately the arms drop an infinitesimal distance and contact is broken : this intermittent action goes on rapidly, and results in an extremely steady speed, the oscillations being so minute that they are barely perceptible, even with a magnifying power of 500 diameters.

I use a driving weight of 40 lb., and find that when this brake is in action 22 lb. can be added without affecting the rate ; and I feel sure that by varying the leverage of the brake, or the battery power, or the size of the electro-magnet, that the weight might just as easily be doubled.

This control was devised in order to obviate the necessity of accurately balancing the telescope (when using a spectroscope, for instance) and to prevent the slackening of the clock's speed, which is frequently caused by a rapid fall in the temperature.

The idea was suggested by a description of a control for machinery invented by Mons. Marcel Deprez,* which, however, is exactly the converse of the plan here described.

Of course I do not intend this simple method to compete with the more perfect, but also more expensive, methods devised by Bond and Cooke and Lord Lindsay, but I can confidently recommend it as an excellent and cheap substitute for those who have not very perfect clocks.

Errata in First Melbourne General Catalogue, 1870.

(*Communicated by R. L. J. Ellery, Esq., F.R.S., Director of the Melbourne Observatory.*)

No.	Name.	Place of Error.	Error.	Correction.
194	γ Hydræ	P″	·0034	·0008
358	α Canis Min.	Name	Majoris	Minoris
552	η Octantis	P′	·2099	·1485
		p′	·033	·007
796	κ Trianguli Aus.	P	5·833	5·834
		a	9·0054	9·0056
		b	9·1710	9·1712
		c	0·7659	0·7660
		d	8·9732	8·9734
		N.P.D.	10″·10	40″·10
		m	(−0·25)	(+0·01)
		a′	9·7822	9·7823
895	Octantis, B.A.C. 5976	P′	·8356	·7589
947	α Lyræ	N.P.D.	30′	20′
1067	Octantis, B.A.C. 7020	P	102·365	102·372

1879, *April* 16.

* See *English Mechanic* for March 14, 1879.